



Health Literacy and Health Outcomes

Choosing a healthy lifestyle, knowing how to seek medical care, and taking advantage of preventive measures require that people understand and use health information. The ability to obtain, process, and understand health information needed to make informed health decisions is known as health literacy.

Given the complexity of the healthcare system, it is not surprising that limited health literacy is associated with poor health. This fact sheet summarizes key research study findings on the relationship between health literacy and health outcomes.

Use of preventive services

According to research studies, persons with limited health literacy skills are more likely to skip important preventive measures such as mammograms, Pap smears, and flu shots.¹ When compared to those with adequate health literacy skills, studies have shown that patients with limited health literacy skills enter the healthcare system when they are sicker.²

Knowledge about medical conditions and treatment

Persons with limited health literacy skills are more likely to have chronic conditions and are less able to manage them effectively. Studies have found that patients with high blood pressure,³ diabetes,³⁻⁵ asthma,⁶ or HIV/AIDS⁷⁻⁹ who have limited health literacy skills have less knowledge of their illness and its management.

Rates of hospitalization

Limited health literacy skills are associated with an increase in preventable hospital visits and admissions.¹⁰⁻¹³ Studies have demonstrated a higher rate of hospitalization and use of emergency services among patients with limited literacy skills.¹²



Health status

Studies demonstrate that persons with limited health literacy skills are significantly more likely than persons with adequate health literacy skills to report their health as poor.^{10,12}

Healthcare costs

Persons with limited health literacy skills make greater use of services designed to *treat* complications of disease and less use of services designed to *prevent* complications.^{1,11-13} Studies demonstrate a higher rate of hospitalization and use of emergency services among patients with limited health literacy skills.¹⁰⁻¹³ This higher use is associated with higher healthcare costs.^{14,15}

Stigma and shame

Low health literacy may also have negative psychological effects. One study found that those with limited health literacy skills reported a sense of shame about their skill level.¹⁶ As a result, they may hide reading or vocabulary difficulties to maintain their dignity.¹⁷

About the research

In producing this fact sheet, the Office of Disease Prevention and Health Promotion relied extensively on both the Institute of Medicine (2004) and the Agency for Healthcare Research and Quality (2004) reports, which include comprehensive reviews of the literature on health literacy and health outcomes. For your convenience, the original studies are cited.

In these studies, health literacy was measured by the Rapid Estimate of Adult Literacy in Medicine (REALM) or Test of Functional Health Literacy in Adults (TOFHLA). Both the IOM and AHRQ reports conclude that REALM and TOFHLA are assessments of reading ability, and as such are inadequate measures of health literacy.

Persons with limited health literacy were compared to those with adequate health literacy. Although an increasing number of studies have linked limited health literacy to poor health, the causal relationship between health literacy and health is unknown.

-
- ¹ Scott TL, Gazmararian JA, Williams MV, Baker DW. 2002. Health literacy and preventive health care use among Medicare enrollees in a managed care organization. *Medical Care*. 40(5): 395-404.
 - ² Bennet CL, Ferreira MR, Davis TC, Kaplan J, Weinberger M, Kuzel T, Seday MA, Sartor O. 1998. Relation between literacy, race, and stage of presentation among low-income patients with prostate cancer. *Journal of Clinical Oncology*. 16(9): 3101-3104.
 - ³ Williams MV, Baker DW, Parker RM, Nurss JR. 1998. Relationship of functional health literacy to patients' knowledge of their chronic disease. A study of patients with hypertension and diabetes. *Archives of Internal Medicine*. 158(2): 166-172.
 - ⁴ Schillinger D, Grumbach K, Piette J, Wang F, Osmond D, Daher C, Palacios J, Sullivan G, Bindman AB. 2002. Association of health literacy with diabetes outcomes. *Journal of the American Medical Association*. 288(4): 475-482.
 - ⁵ Schillinger D, Grumbach K, Wang F, Wilson C, Daher C, Leong-Grotz K, Castro C, Bindman AB. 2003. Closing the loop: Physician communication with diabetic patients who have low health literacy. *Archives of Internal Medicine*. 163(1): 83-90.
 - ⁶ Williams MV, Baker DW, Honig EG, Lee TM, Nowlan A. 1998. Inadequate literacy is a barrier to asthma knowledge and self-care. *Chest*. 114(4): 1008-1015.
 - ⁷ Kalichman SC, Ramachandran BB, Catz SP. 1999. Adherence to combination antiretroviral therapies in HIV patients of low health literacy. *Journal of General Internal Medicine*. 14(5): 267-273.
 - ⁸ Kalichman SC, Rompa D. 2000. Functional health literacy is associated with health status and health-related knowledge in people living with HIV-AIDS. *Journal of Acquired Immune Deficiency Syndromes and Human Retrovirology*. 25(4): 337-344.
 - ⁹ Kalichman SC, Benotsch E, Suarez T, Catz S, Miller J, Rompa D. 2000. Health literacy and health-related knowledge among persons living with HIV/AIDS. *American Journal of Preventive Medicine*. 18(4): 325-331.
 - ¹⁰ Baker DW, Parker RM, Williams MV, Clark WS. 1997. The relationship of patient reading ability to self-reported health and use of health services. *American Journal of Public Health*. 87(6): 1027-1030.
 - ¹¹ Baker DW, Parker RM, Williams MV, Clark WS. 1998. Health literacy and the risk of hospital admission. *Journal of General Internal Medicine*. 13(12): 791-798.
 - ¹² Baker DW, Gazmararian JA, Williams MV, Scott T, Parker RM, Green D, Ren J, Peel J. 2002. Functional health literacy and the risk of hospital admission among Medicare managed care enrollees. *American Journal of Public Health*. 92(8): 1278-1283.
 - ¹³ Gordon MM, Hampson R, Capell HA, Madhok R. 2002. Illiteracy in rheumatoid arthritis patients as determined by the Rapid Estimate of Adult Literacy (REALM) score. *Rheumatology*. 41(7): 750-754.

¹⁴ Friedland R. 1998. New estimates of the high costs of inadequate health literacy. In: *Proceedings of Pfizer Conference "Promoting Health Literacy: A Call to Action."* October 7-8, 1998, Washington, DC: Pfizer, Inc., 6-10.

¹⁵ Howard DH, Gazmararian J, Parker RM. 2005. The impact of low health literacy on the medical costs of Medicare managed care enrollees. *The American Journal of Medicine.* 118: 371-377.

¹⁶ Parikh NS, Parker RM, Nurss JR, Baker DW, Williams MV. 1996. Shame and health literacy: The unspoken connection. *Patient Education and Counseling.* 27(1): 33-39.

¹⁷ Baker DW, Parker MR, Williams MV, Ptikin K, Parikh NS, Coates W, Imara M. 1996. The health care experience of patients with low literacy. *Archives of Family Medicine.* 5(6): 329-334.